

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 September 2004 (30.09.2004)

PCT

(10) International Publication Number
WO 2004/084458 A3

(51) International Patent Classification⁷: **H04H 1/00**,
H04L 9/00

(21) International Application Number:
PCT/US2004/007403

(22) International Filing Date: 11 March 2004 (11.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/454,542 14 March 2003 (14.03.2003) US

(71) Applicant (for all designated States except US): **THOMSON LICENSING S.A.** [FR/FR]; 46, Quai A. Le Gallo, F-92648 Boulogne (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ZHANG, Junbiao** [CN/US]; 20 Jenna Drive, Bridgewater, NJ 08807 (US). **MATHUR, Saurabh** [IN/US]; 4923 Quail Ridge Drive, Plainsboro, IN 08536 (US). **MODY, Sachin** [IN/US]; 708 White Pine Circle, Lawrenceville, NJ 08648 (US).

(74) Agents: **TRIPOLI, Joseph** et al.; c/o Thomson Licensing, Inc., Two Independence Way, Suite 200, Princeton, New Jersey 08540 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
18 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **WLAN SESSION MANAGEMENT TECHNIQUES WITH SECURE REKEYING AND LOGOFF**

(57) Abstract: The invention provides a method for improving the security of a mobile terminal in a WLAN environment by installing two shared secrets instead of one shared secret, the initial session key, on both the wireless user machine and the WLAN access point during the user authentication phase. One of the shared secrets is used as the initial session key and the other is used as a secure seed. Since the initial authentication is secure, these two keys are not known to a would be hacker. Although the initial session key may eventually be cracked by the would be hacker, the secure seed remains secure as it is not used in any insecure communication.

WO 2004/084458 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/07403

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : H04H 1/00; H04L 9/00 US CL : 370/312; 713/172,183 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 178 644 A2 (STENMAN et al) 06 February 2002 (06.02.2002), see entire document.	1-23
A	US 6,151,677 A (WALTER et al.) 21 November 2000 (21.11.2000).	1-23
A	US 6,304,658 B1 (KOCHER et al.) 16 October 2001 (16.10.2001).	1-23
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 31 August 2004 (31.08.2004)		Date of mailing of the international search report 10 SEP 2004
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Ayaz Sheikh Telephone No. 703-305-9648